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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,205	10/06/2000	Jack H. Hetherington	PIE-10102/29	2529

7590 03/19/2004

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EXAMINER

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ART UNIT	PAPER NUMBER
2673	62

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Paper No. 12

Application Number: 09/684,205

Filing Date: October 06, 2000

Appellant(s): HETHERINGTON, JACK H.

John G. Posa
For Appellant

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MAR 19 2004
Technology [Signature]

EXAMINER'S ANSWER

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims 1-7 and 18-19; 10; 11-17; 20; 21 and 23; 22 and 24; and 25 and 26 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) *ClaimsAppealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

6,304,091	SHAHOIAN et al	10-2001
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5,576,704	BAKER et al	11-1996
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(10) *Grounds of Rejection*

The following ground(s) of rejection are applicable to the appealed claims:

Specification

1. The disclosure is objected to because of the following informalities: page 22, “We claim” must be deleted. Appropriate correction is required.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: there is no reference sign in figure 1B.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature, “an entire radial area around the axis of rotation” recited in claim 25, line 5, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

4. Claims 1 and 11 are objected to under 37 CFR 1.75(a) because although these claims meet the requirement 112/2d, i.e., the metes and bounds are determinable, however, the features, “user position” (see claim 1, lines 11, 14 and 16) should be changed to -- the position of said elongated member --, and “user position” (see claim 11, lines 13, 16 and 17) should be changed

to -- the position of said joystick lever --, so as to be consistent with the disclosure, see specification, page 11, lines 9-11.

5. Claims 8 and 9 are objected to under 37 CFR 1.75(a) because although this claim meets the requirement 112/2d, i.e., the metes and bounds are determinable, however, "stationary signal detecting capacitor", "stationary signal transmitting capacitor plate", "dielectric element", "elongate member" and "a user" should be respectively changed to -- second stationary signal detecting capacitor --, -- second stationary signal transmitting capacitor plate --, -- second dielectric element --, -- second elongate member --, and -- said second elongated members --, so as to make them to be distinct from the features recited in independent claim 1 and to be consistent with the disclosure, see specification, page 11, lines 9-11.

It is in the best interest of the patent community that applicant, in his/her normal review and/or rewriting of the claims, to take into consideration these editorial situations and make changes as necessary.

6. Claims 8, 9, 25 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per claims 8 and 9, it is not clear what the Applicant means "wherein the elongated members are supported at right angles to one another to measure movement in x and y dimensions", as recited in claim 8, lines 5-6, i.e., the movement **of what object** is measured.

As per claims 25 and 26, it is not clear what the Applicant means "neither plate consuming an entire radial area around the axis of rotation", as recited in claim 25, line 5, i.e.,

what an entire radial area around the axis of rotation is, and how neither plate consumes an entire radial area around the axis of rotation.

7. Claims 25 and 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Shahoian et al. (USPN: 6,304,091 B1), hereinafter Shahoian.

As per claims above, the claimed invention reads on Shahoian as follows: Shahoian discloses a capacitive position sensor (a position sensor 100, see fig. 3C) for interconnection to a computer (col. 1, lines 20-24, col. 2, lines 41-44, col. 9, lines 51-54) comprising a non-circular dielectric member (a dielectric 107, fig. 3d, col. 8, line 39) coupled to a scroller wheel (col. 9, lines 3-6), a pair of electrically conductive capacitor plates (a vane 110 corresponding to one of the claimed plates and a combination of stators 102-108 and a PCB 109/120, corresponding to another of the claimed plates, fig. 3c, col. 8, lines 37-41), a circuitry (an electronics circuit 50, fig. 3a, col. 8, last line through col. 9, line 2 and col. 9, lines 25-42) and an output (an output used to input the position of a user-manipulated physical manipulandum to the computer, col. 9, lines 51-54). The elements in the claim are read in the reference.

8. Claims 1-3, 5-7, 10-12 and 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shahoian, and further in view of Baker et al. (USPN: 5,576,704, cited in IDS filed on 01/29/2001), hereinafter Baker.

As per claims 1 and 2, Shahoian discloses a capacitive position sensor (a position sensor 10/100, see figs. 1 and 3c) for interconnection to a computer (col. 1, lines 20-24, col. 2, lines 41-44, col. 9, lines 51-54) comprising a signal detecting capacitor plate (a second plate or vane 14/56/110, see figs. 1, 3a and 3d), a stationary signal transmitting capacitor plate (a first plate or stator 12/54/102-109, see figs. 1, 3a, 3c and 3d), a dielectric member (a dielectric material

15/107, see figs. 1 and 3d, col. 4, line 19), an elongated member (user manipulandum or joystick handle 112, see col. 9, lines 3-6, fig. 3C), a circuitry (an electronics circuit 50, see fig. 3a) and an output (an output used to input the position of a user-manipulated physical manipulandum to the computer, see col. 9, lines 51-54). Accordingly, Shahoian discloses the claimed limitations except that Shahoian discloses the signal detecting capacitor plate (14/56/110) movable instead of stationary, as recited in claim above. In other words, the difference between the Shahoian reference and the invention defined in claims above is a stationary of the signal detecting capacitor plate.

However, Baker discloses a related capacitive joystick (see fig. 1) comprising a stationary signal detecting capacitor plate (an electrode 135, see fig. 1, col. 3, line 5), a stationary signal transmitting capacitor plate (another electrode 135, see fig. 1, col. 3, line 5) and a dielectric member (a dielectric body 140, fig. 1, col. 3, line 12) laterally shifting in a plane parallel substantially to the stationary plates. See col. 3, lines 24-30. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to make the Shahoian signal detecting capacitor plate (14/56/110) being stationary, so that the Shahoian dielectric member (15/107) can shift laterally in a plane parallel substantially to two stationary plates, in view of the teaching in the Baker reference, because a person of ordinary skill in the art at the time of the invention was made would recognize that the benefit for doing so is to prevent any unwanted wide voltage fluctuations and variations in the signals to be sensed between the signal detecting capacitor plate (14/56/110) and the electronics circuit, occurred due to the movement of the signal detecting capacitor plate (14/56/110) since the signal detecting capacitor plate (14/56/110) is connected to a power source (58) of the electronic circuit (50) (see fig. 3a),

thereby producing an accurate position of the user manipulandum or joystick handle. Therefore, it would have been obvious to combine Baker with Shahoian to obtain the invention as specified in claims above.

Regarding to claim 3, Shahoian further teaches the elongated member (i.e., user manipulandum) being a user graspable joystick (a joystick handle, see col. 9, lines 3-6), and Baker also teaches the same (a control shaft 107, see fig. 1).

Regarding to claims 11 and 12, these claims recite limitations similar to those of claims 1 and 2 above (including a joystick lever of claim 11 corresponding to the claimed elongated member of claim 1), except these claims further recite a housing having a top surface. However, Baker further discloses the joystick further comprising a housing having a top surface, as claimed (see fig. 1). Therefore, these claims are unpatentable over Shahoian in view of Baker.

Regarding to claims 5 and 14, Shahoian further teaches the dielectric element being non-circular (a wedge-shaped dielectric member 107, see fig. 3c) and enabling the circuitry to determine the user rotation of the elongated member (col. 9, lines 3-13).

Regarding to claims 6, 15, 16 and 19, Shahoian further discloses four arcuate segments (stators 102-108, best seen in fig. 3C).

Regarding to claims 7 and 17, Shahoian further discloses the dielectric element being a circular disc (fig. 4 and the description at col. 4, lines 19-21, imply the dielectric element being a circular disc).

Regarding to claim 10, as noting in fig. 3a and the corresponding description at col. 7, lines 15-38 and col. 8, last line through col. 9, line 2, the Shahoian reference implicitly discloses the steps of providing the position sensor and placing the signal detecting plate (14/56/110) at a

known electrical potential (a ground potential 58), placing the signal transmitting plate (12/52, 54/102-109) at a first electrical potential (a low potential of the drive signal from the oscillator 60), changing the potential on the signal transmitting plate (12/52, 54/102-109) to a second known potential (a high potential of the drive signal from the oscillator 60), measuring and storing the capacitance between the plates, repeating the above steps for each of segments (52, 54) and determining the position of the dielectric and elongated member (col. 7, line 15 through col. 9, line 13, specifically col. 8, lines 6-11). Accordingly, the combination of Baker and Shahoian teaches all the claimed limitations of claim 10.

Regarding to claim 18, Shahoian further teaches the dielectric element being rectangular-shaped (see fig. 1), circular-shaped (fig. 4) or wedge-shaped (fig. 3c), but does not disclose expressly the dielectric element being oval or egg-shaped, as claimed. However, absent a showing of criticality it would have been within the level of skill in the art and obvious to one having ordinary skill to engineering design the shape an element as desired as was judicially recognized in re Dailey, 149 USPQ 47 (CCPA 1976). Therefore, this claim is rejected for the reason as set forth above.

Regarding to claim 20 as applied to claim 1 above, Shahoian further teaches the segments (52, 54) of the signal transmitting plate (12/52, 54/109) arranged as parallel segments in the X-direction, and the dielectric member (15/107) under the signal detecting capacitor plate (14/56/110) (best seen in fig. 3d) laterally shifting in the X direction. Accordingly, the combination of Baker and Shahoian teaches all the claimed limitations of claim 20.

Regarding to claims 21 and 23, as noting in fig. 1, Baker discloses the elongated member including a pivoting (a cardan joint 118, fig. 1, col. 2, line 63) and the distal end (an actuating

body 125) loosely coupled to the dielectric element (140) so that the dielectric member (140) remains in a plane parallel to the stationary plates (135) as the dielectric member (140) is laterally shifted. See col. 2, line 58 through col. 3, line 31. Accordingly, the combination of Baker and Shahoian teaches all the claimed limitations of claims 21 and 23.

Regarding to claims 22 and 24, as noting in fig. 1 of Baker as well recognized by one of ordinary skill in the art at the time of the invention was made, if the spacing of the two stationary plates (135) is small, so that the friction force between the dielectric member (140) and the plates (135) will cause the movement of the dielectric member (140) constrained. Accordingly, the combination of Baker and Shahoian teaches all the claimed limitations of claims 21 and 23.

(11) Response to Argument

1. With respect to the rejection under 35 USC 102 to claims 25 and 26, Appellant states that since the Shahoian dielectric member 107 is actually bonded to one of the movable electrodes 110, the Shahoian reference fails to anticipate Appellant capacitor plates supported on either side of the dielectric member, page 3, last line through page 4, line 3, of the appeal brief. Examiner disagrees since the Shahoian reference implicitly discloses the two capacitor plates (a vane 110 corresponding to one of the claimed plates and a combination of elements 102-109 corresponding to another of the claimed plates, see figs. 3c and 3d) supported on either side of the dielectric member (107), in order to provide the capacitors (see col. 8, lines 26-51).

2. With respect to the rejection to claims 25 and 26 under 35 USC 103(a) over Shahoian in view of Baker, Appellant states that there is no specific rejection with respect to these claims, page 4, second and third paragraphs. Examiner agrees due to a typo. This rejection is hereby withdrawn by the Examiner.

3. With respect to the rejection to claims 1-7 and 18-19 under 35 USC 103(a) over Shahoian in view of Baker, Appellant states that the Shahoian reference fails to teach or to suggest a moving dielectric between two stationary plates, as recited in independent claim 1, and in fact, the Shahoian reference teaches a dielectric plate which is either attached to the movable plate or the stationary plate, page 5, last two paragraphs of the appeal brief. Examiner agrees; however, as discussed in the rejection above, the Shahoian reference discloses expressly, in the case of the dielectric plate (107) attached to a movable plate (110), the movable dielectric plate between a stationary plate (102-109) and a movable plate (110). Accordingly, the difference between the Shahoian reference and the invention of claim 1 is that the Shahoian reference discloses the plate (110) being movable instead of being stationary as recited in claim 1. Since claim 1 is rejected under 35 USC 103(a), Baker expressly teaches a moving dielectric (140) between two stationary plates (135), as discussed in the above detailed rejection.

Further, Appellant states that the motivation must be something in the prior art that suggests the proposed modification, page 6, second paragraph, and Appellant find no teaching or suggestion whatsoever that the combination of Shahoian and Baker “would prevent wide voltage fluctuations ... occurred due to the movement of the signal detecting capacitor plate ...”. Examiner disagrees since the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or **in the knowledge generally available to one of ordinary skill in the art**. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as discussed in the above detailed rejection, the

examiner recognizes that the suggestion or motivation to do so can be found in the knowledge generally available to one of ordinary skill in the art. Since the signal detecting capacitor plate (14/56/110) is connected to a power source (58) of the electronic circuit (50) (see fig. 3a, col. 7, lines 20-22), the movement of the signal detecting capacitor plate (14/56/110) causes the power/voltage signal in the connection, varying and picking up unwanted noises in the nearby environment, thereby providing an uncorrected output signals (V1, V2) and inaccurate position of the user manipulandum or joystick handle. Furthermore, providing the Shahoian signal detecting capacitor plate being stationary would prevent a broken connection between the power source (58) and the Shahoian signal detecting capacitor plate.

4. With respect to the rejection to claim 10 under 35 USC 103(a) over Shahoiran in view of Baker, Appellant states that figure 3A of Shahoian and the corresponding description do not disclose the steps recited in claim 10, page 7, second paragraph of the appeal brief. In response to this, the Examiner discusses more in the above detailed rejection.

5. With respect to the rejection to claims 11-17 under 35 USC 103(a) over Shahoiran in view of Baker, Appellant states that independent claim 11 further includes a limitation, "joystick lever", which is not considered by the examiner, pages 7-8 of the appeal brief. Examiner disagrees since the joystick lever of claim 11 is similar to the elongated member of claim 1, which is considered in the above rejection.

6. With respect to the rejection to claim 20 under 35 USC 103(a) over Shahoiran in view of Baker, Appellant states that vane 56 is movable, is an electrode and not a dielectric, page 8 of the appeal brief. Examiner agrees vane (56) being not a dielectric; however, the dielectric (15/107) is disposed below the vane (56/14/110), in order to provide capacitance between two

plates. See fig. 3d. Further, it is noted Appellant that, without a dielectric member, the vane (56) and stators (52, 54) can't form capacitors.

7. With respect to the rejection to claims 21 and 23 under 35 USC 103(a) over Shahoiran in view of Baker, Appellant states that the Baker reference, specifically fig. 1, does not disclose an elongated member having a distal end which is loosely coupled to a dielectric element, page 8 of the appeal brief. Examiner disagrees, and in response to this, examiner discusses more in the above detailed rejection.

8. With respect to the rejection to claims 22 and 24 under 35 USC 103(a) over Shahoiran in view of Baker, Appellant states that the Shahoian/Baker combination fails to teach or suggest the movement of the dielectric element is constrained by the spacing of the stationary plates, page 9 of the appeal brief. Examiner disagrees, and in response to this, examiner discusses more in the above detailed rejection.

9. With respect to the rejection to claims 8 and 9 under 35 USC 112, second paragraph, Appellant states that the disclosure, specifically fig. 8, discloses the ball rotates, movements in the X and Y dimensions can be recorded, page 9 of the appeal brief. However, Appellant does not indicate clearly the movements **of what object** in the X and Y dimensions can be recorded.

10. With respect to the rejection to claims 25 and 26 under 35 USC 112, second paragraph, Applicant states that the limitation, "neither plate consuming an entire radial area around the axis of rotation", means that neither plate forms a continuous electrical path around the axis of rotation and that each plate contains a discontinuity, page 9, last paragraph of the appeal brief. Examiner disagrees because the disclosure, specifically fig. 1A and the description,

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page 10, lines 13-18, expressly teaches that a continuous or unbroken metalization pattern 114, which corresponds to one of the claimed capacitor plates, does not contain a discontinuity.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,



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Examiner

JHN
March 16, 2004

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